

WHAT IS CLAIMED IS:

1. A zoom lens system comprising, in order from an object:

a first lens group having negative refractive  
5 power; and

a second lens group having positive refractive power;

zooming being carried out by varying an air space between the first lens group and the second  
10 lens group;

the first lens group including at least, in order from the object, a negative lens, and a positive lens;

the second lens group including, in order from  
15 the object, a front lens group having positive refractive power and a rear lens group having positive refractive power;

the front lens group including, in order from the object, a positive lens and a cemented lens  
20 constructed by a positive lens cemented with a negative lens;

the rear lens group including, in order from the object, a cemented lens constructed by a negative lens cemented with a positive lens; and

25 the following conditional expression being satisfied:

$$0.27 \leq D_s/D \leq 0.8$$

where  $D_s$  denotes an air space along the optical axis between the most image side lens surface of the front lens group and the most object side lens surface of the rear lens group, and  $D$  denotes a distance along the optical axis between the most object side lens surface and the most image side lens surface of the second lens group.

2. The zoom lens system according to claim 1, wherein the following conditional expression is satisfied:

$$0.5 \leq f_b/f_a \leq 15$$

where  $f_a$  denotes the focal length of the front lens group, and  $f_b$  denotes the focal length of the rear lens group.

3. The zoom lens system according to claim 2, wherein the following conditional expression is satisfied:

$$0 < n_{an} - n_{ap} < 0.45$$

where  $n_{ap}$  denotes refractive index of the positive lens of the cemented lens in the front lens group at d-line, and  $n_{an}$  denotes refractive index of the negative lens of the cemented lens in the front lens group at d-line.

4. The zoom lens system according to claim 3,

wherein the following conditional expression is satisfied:

$$0 < n_{bn} - n_{bp} < 0.45$$

5       where  $n_{bn}$  denotes refractive index of the negative lens of the cemented lens in the rear lens group at d-line,  $n_{bp}$  denotes refractive index of the positive lens of the cemented lens in the rear lens group at d-line.

10       5. The zoom lens system according to claim 4, wherein an aperture stop for defining an f-number is arranged between the front lens group and the rear lens group.

15       6. The zoom lens system according to claim 5, wherein the following conditional expression is satisfied:

$$v_{1p} < 23.2$$

20       where  $v_{1p}$  denotes Abbe number of the medium of the positive lens in the first lens group.

7. The zoom lens system according to claim 6, wherein the following conditional expression is satisfied:

25        $1.790 < n_{1p}$

      where  $n_{1p}$  denotes refractive index of the medium of the positive lens in the first lens group.

8. The zoom lens system according to claim 7,  
wherein

the first lens group consists of, in order from  
5 the object, the negative lens and the positive lens;  
and wherein

the positive lens has a convex surface facing to  
the object.

10 9. The zoom lens system according to claim 1,  
wherein the following conditional expression is  
satisfied:

$$0 < n_{an} - n_{ap} < 0.45$$

where  $n_{ap}$  denotes refractive index of the  
15 positive lens of the cemented lens in the front lens  
group at d-line, and  $n_{an}$  denotes refractive index of  
the negative lens of the cemented lens in the front  
lens group at d-line.

20 10. The zoom lens system according to claim 9,  
wherein the following conditional expression is  
satisfied:

$$0 < n_{bn} - n_{bp} < 0.45$$

where  $n_{bn}$  denotes refractive index of the  
25 negative lens of the cemented lens in the rear lens  
group at d-line,  $n_{bp}$  denotes refractive index of the  
positive lens of the cemented lens in the rear lens

group at d-line.

11. The zoom lens system according to claim 1,  
wherein the following conditional expression is  
5 satisfied:

$$0 < n_{bn} - n_{bp} < 0.45$$

where  $n_{bn}$  denotes refractive index of the  
negative lens of the cemented lens in the rear lens  
group at d-line,  $n_{bp}$  denotes refractive index of the  
10 positive lens of the cemented lens in the rear lens  
group at d-line.

12. The zoom lens system according to claim 1,  
wherein an aperture stop for defining an f-number is  
15 arranged between the front lens group and the rear  
lens group.

13. The zoom lens system according to claim 1,  
wherein the following conditional expression is  
20 satisfied:

$$v_{1p} < 23.2$$

where  $v_{1p}$  denotes Abbe number of the medium of  
the positive lens in the first lens group.

25 14. The zoom lens system according to claim 13,  
wherein the following conditional expression is  
satisfied:

$$1.790 < n_{1p}$$

where  $n_{1p}$  denotes refractive index of the medium of the positive lens in the first lens group.

5           15. The zoom lens system according to claim 1, wherein the following conditional expression is satisfied:

$$1.790 < n_{1p}$$

10           where  $n_{1p}$  denotes refractive index of the medium of the positive lens in the first lens group.

16. The zoom lens system according to claim 1, wherein

15           the first lens group consists of, in order from the object, the negative lens and the positive lens; and wherein

the positive lens has a convex surface facing to the object.

20           17. A zoom lens system comprising, in order from an object:

a first lens group having negative refractive power; and

25           a second lens group having positive refractive power;

zooming being carried out by varying an air space between the first lens group and the second

lens group;

the first lens group including at least, in order from the object, a negative lens and a positive lens;

5 the second lens group including, in order from the object, a front lens group and a rear lens group;

the front lens group including, in order from the object, a positive lens and a cemented lens constructed by a positive lens cemented with a  
10 negative lens;

the rear lens group including, in order from the object, a cemented lens constructed by a negative lens cemented with a positive lens; and

the following conditional expression being  
15 satisfied:

$$v_{1p} < 23.2$$

where  $v_{1p}$  denotes Abbe number of the medium of the positive lens in the first lens group.

20 18. The zoom lens system according to claim 17, wherein

the first lens group consists of, in order from the object, the negative lens and the positive lens; and wherein the positive lens has a convex surface  
25 facing to the object.

19. The zoom lens system according to claim 18,

wherein an aperture stop for defining an f-number is arranged between the front lens group and the rear lens group.

5           20. A zoom lens system comprising, in order from an object:

          a first lens group having negative refractive power; and

          a second lens group having positive refractive  
10       power;

          zooming being carried out by varying an air space between the first lens group and the second lens group;

          the first lens group consisting of, in order  
15       from the object, a negative lens and a positive lens having a convex surface facing to the object;

          the second lens group including, in order from the object, a positive lens, a first cemented lens constructed by a positive lens cemented with a  
20       negative lens, an aperture stop and a second cemented lens constructed by a negative lens cemented with a positive lens.